IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Michael T. Roeder	Examiner: Yuen, Kan
Serial No. 10/633,440	Art Unit: 2616
Filing Date: August 1, 2003	Attorney Docket No.: 200313512-1

Title: User Configurable Functions for Adjusting Service Differentiation Meters

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Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF FILED UNDER 37 C.F.R. § 41.37

Sir:

A Notice of Appeal was filed on October 13, 2008 for the above-referenced application. This submission is an Appeal Brief in connection with that Notice of Appeal.

The Commissioner is hereby authorized to charge requisite fees due for this submission to Deposit Account No. 08-2025 (Hewlett Packard).

I. REAL PARTY IN INTEREST

The real party in interest is the Hewlett-Packard Development Company, L.P., a Texas Limited Partnership having its principal place of business in Houston, Texas. The Hewlett-Packard Development Company, L.P., is the assignee of the present application.

II. RELATED APPEALS AND INTERFERENCES

On information and belief, there are no appeals, interferences, or judicial proceedings known to the appellant, the appellant's legal representative, or assignee which may be related to, directly affect or be directly affected by or have a bearing on the Board of Patent Appeals and Interferences (the "Board") decision in the pending appeal.

III. STATUS OF CLAIMS

A. Total Claims: 1, 3-6, 9-16, 18, 19, and 21-26

B. Current Status of Claims:

1. Claims canceled: 2, 7, 8, 17, and 20
2. Claims withdrawn: none
3. Claims pending: 1, 3-6, 9-16, 18, 19, and 21-26
4. Claims allowed: none
5. Claims rejected: 1, 3-6, 9-16, 18, 19, and 21-26
6. Claims objected to: none

C. Claims on Appeal: 1, 3-6, 9-16, 18, 19, and 21-26

As indicated above, claims 1, 3-6, 9-16, 18, 19, and 21-26 are pending in this application and stand finally rejected in the final office action mailed July 21, 2008 ("the latest office action"). The rejections of claims 1, 3-6, 9-16, 18, 19, and 21-26 are being appealed.

IV. STATUS OF AMENDMENTS

No amendment has been filed after the final rejection.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The claimed subject matter relates to telecommunications and computer networking.

Independent claim 1 relates to a method of assigning service priorities to traffic from a plurality of sources using meters (page 1, lines 30-31). A packet is received and placed into a specific class of service (COS) group pertaining to a specific service being tracked and controlled (block 202 in Fig. 3; page 5, lines 1-3). A fabric-adjusted meter modifier is determined depending on a payload size of the packet and on technology of a limiting uplink being used (block 302 in Fig. 3; page 5, lines 4-23). The fabric-adjusted meter modifier is added to a meter corresponding to the specific COS group (block 304 in Fig. 3; page 5, lines 24-29). The meter comprises a counter that tracks traffic associated with said service over a period of time (page 4, lines 16-17), and said adding updates the meter (page 5, lines 24-29).

Independent claim 9 relates to an apparatus for forwarding traffic from a plurality of sources (router 104 in Fig. 1). The apparatus includes a port for receiving a packet that is placed into a specific COS group pertaining to a specific service being tracked and controlled (page 5, lines 1-3). Calculation circuitry is configured to determine a fabric-adjusted meter modifier depending on a payload size of the packet and on a technology of an uplink being used (block 302 in Fig. 3 described on page 5, lines 4-23; Fig. 4 described on page 6, lines 7-25, for example). In addition, update circuitry is configured to add the fabric-adjusted meter modifier to a meter corresponding to the specific COS group (block 304 in Fig. 3 described on page 5, lines 24-29). Said meter comprises a counter that tracks traffic associated with said service over a period of time (page 4, lines 16-17).

Independent claim 15 relates to a system for routing traffic from a plurality of sources using class of service (COS) meters (router 104 in Fig. 1). The system includes

means for receiving a packet that is placed into a specific COS group pertaining to a specific service being tracked and controlled (page 5, lines 1-3; "port" in original claim 9). In addition, the system includes means for determining a fabric-adjusted meter modifier depending on a payload size of the packet and on a technology of an uplink being used (block 302 in Fig. 3 described on page 5, lines 4-23; Fig. 4 described on page 6, lines 7-25, for example). The system further includes means for adding the fabric-adjusted meter modifier to a COS meter corresponding to the specific COS group (block 304 in Fig. 3 described on page 5, lines 24-29). Said meter comprises a counter that tracks traffic associated with said service over a period of time, and said adding updates said meter (page 4, lines 16-17).

Independent claim 16 relates to a method of implementing class of service (COS) functionality in a telecommunications system (Fig. 8, described on page 8, line 30 through page 9, line 6; Fig. 3, described on page 4, line 27 through page 6, line 6). A user-configurable function is defined by way of a user interface (block 802 in Fig. 8, described on page 8, lines 32-33). The user-configurable function is assigned to be a meter modifier function associated with a class of service group in the system (block 804 in Fig. 8, described in page 8, line 33 through page 9, line 2). The meter modifier function depends on a payload size of a packet (page 9, lines 2-3) is used to adjust for a fabric uplink technology (block 302 in Fig. 3, described on page 5, lines 4-14). The meter modifier function is added to a group meter so as to update the group meter (block 304 in Fig. 3, described on page 5, lines 24-29).

Independent claim 21 relates to a method of implementing class of service (COS) functionality in a telecommunications system (Fig. 8, described on page 8, line 30 through page 9, line 6; Fig. 3, described on page 4, line 27 through page 6, line 6). Multiple user-configurable meter modifier functions are defined by way of a user interface (page 9, lines 7-9), said meter modifier functions to be added to meters to update said meters (block 304 in Fig. 3, described on page 5, lines 24-29). Each service class of a set of service classes is assigned to one of the user-configurable meter modifier functions (page 9, lines 9-11), wherein the meter modifier functions are dependent upon packet payload size and which type of fabric-uplink technology is used (page 8, line 33 through page 9, line 6, for example).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The following ground of rejection is to be reviewed on appeal:

1. Rejection of claims 1, 9, 10, 15, 16 and 21 under 35 U.S.C. § 103(a) as being unpatentable over Sreejith et al. (Pat. No. 7,239,608) in view of Masuda et al. (Pat. No. 6,678,474);

2. Rejection of claims 3-6, 11-13, 18, 19 and 25 under 35 U.S.C. § 103(a) as being unpatentable over Sreejith et al. (Pat. No. 7,239,608) in view of Masuda et al. (Pat. No. 6,678,474) as applied to claim 1 above and further in view of Mittal et al. (Pat. No. 7,035,212);

3. Rejection of claim 14 under 35 U.S.C. § 103(a) as being unpatentable over Sreejith et al. (Pat. No. 7,239,608) in view of Masuda et al. (Pat. No. 6,678,474) as applied to claim 9 above and further in view of Norrell et al. (Pat. No. 6,874,096);

4. Rejection of claims 22-24 under 35 U.S.C. § 103(a) as being unpatentable over Sreejith et al. (Pat. No. 7,239,608) in view of Masuda et al. (Pat. No. 6,678,474) as applied to claim 1 above and further in view of Valvo et al. (Pat. No. 7,292,534); and

5. Rejection of claim 26 under 35 U.S.C. § 103(a) as being unpatentable over Sreejith et al. (Pat. No. 7,239,608) in view of Masuda et al. (Pat. No. 6,678,474) and Mittal et al. (Pat. No. 7,035212) as applied to claim 25 above and further in view of Norrell et al. (Pat. No. 6,874,096).

VII. ARGUMENT

Applicants respectfully traverse the aforementioned rejections of claims 1, 3-6, 9-16, 18, 19, and 21-26 in the latest office action for the following reasons.

A. Rejection of claims 1, 9, 10, and 15 under 35 U.S.C. § 103(a) as being unpatentable over Sreejith et al. (Pat. No. 7,239,608) in view of Masuda et al. (Pat. No. 6,678,474)

Claims 1, 9, 10, and 15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Sreejith et al. (Pat. No. 7,239,608) in view of Masuda et al. (Pat. No. 6,678,474). This rejection is respectfully traversed.

Claim 1 recites as follows.

1. A method of assigning service priorities to traffic from a plurality of sources using meters, the method comprising:

receiving a packet that is placed into a specific class of service (COS) group pertaining to a specific service being tracked and controlled;

determining a fabric-adjusted meter modifier depending on a payload size of the packet and on technology of a limiting uplink being used; and

adding the fabric-adjusted meter modifier to a meter corresponding to the specific COS group, wherein the meter comprises a counter that tracks traffic associated with said specific service over a period of time, and wherein said adding updates the meter.

(Emphasis added.)

As discussed below, the cited art does not disclose or suggest the method of claim 1.

First, claim 1 recites, "receiving a packet that is **placed into a specific class of service (COS) group** pertaining to a specific service being tracked and controlled." (Emphasis added.) As stated in the original application on page 4, lines 11-13, "The specific COS group may be labeled 'Ci' and pertains to a specific service being tracked

and controlled. For example, the service may relate to traffic from a particular customer via a specific uplink."

In contrast, the cited portion of Sreejith (fig. 3 and col. 6, lines 4-38) per the latest office action relates to **low-level hardware circuitry for routing packets to different paths** based on their IP addresses. In particular, fig. 3 of Sreejith depicts an input-output processor (IOP) 216 within a routing node 210 (see col. 6, lines 4-5), and col. 6, lines 1-18 relates to a packet classification controller 305 which "**examines the IP address of the received packets and determines which data packets must be sent to the switch fabric 130 and which data packets may be sent back out via PMD 212 and PMD 214**." (Emphasis added.) Per Sreejith et al., PMD stands for physical medium device. In other words, the cited portion of Sreejith et al. relates to hardware circuitry of an IOP within a routing node which determines which packets can be sent out of the physical medium devices connected to the IOP and which packets must be sent to the switch fabric of the routing node.

The rejection appears to assert that managing the **load balancing** between the O1 and O2 uplink paths in Sreejith et al. reads upon the claim limitation of placing a received packet into a specific **class of service** group. However, applicant respectfully submits that one of ordinary skill in the art knows that **load balancing between different uplink paths is entirely different in function and operation as placing packets in class of service groups.**

Hence, applicant respectfully submits that the above-discussed citation to Sreejith et al. does not disclose or suggest the claim limitation of "receiving a packet that is **placed into a specific class of service (COS) group** pertaining to a specific service being tracked and controlled." At a high-level point-of-view, the above-discussed citation to Sreejith et al. pertains to relatively low-level hardware circuitry for routing packets, while the claim limitation pertains to the relatively higher-level functionality of tracking and controlling traffic for a specific service.

Masuda et al. is not cited in relation to this claim limitation.

Second, claim 1 recites "**determining a fabric-adjusted meter modifier**." (Emphasis added.) This claim language is supported in the original specification, for

example, on page 5, lines 15-27, which recites as follows. "The computation 302 of the fabric-adjusted meter modifier may be performed using various calculation circuits. ... Once the fabric-adjusted meter modifier is calculated, then it is added 304 to the meter corresponding to the COS group. This results in an updated meter value that is a more accurate reflection of the actual bandwidth resources used in forwarding packets for the COS group."

The latest office action asserts that col. 6, lines 17-38 and fig. 3 of Sreejith et al. discloses "determining a fabric-adjusted meter modifier depending of a limiting uplink being used." (Page 3, lines 13-14 of the latest office action.) In particular, the latest office action asserts that "the data packet load statistics are the technology of a limiting uplink, and **the load balancing controller 315 is the fabric-adjusted meter modifier** that controls and modifies the routing information stored in the load balancing table 320." (Page 3, lines 19-22 of the latest office action.) This assertion is respectfully traversed.

Applicant respectfully submits that the above-discussed citation in Sreejith does not disclose or suggest "**determining a fabric-adjusted meter modifier.**" It is not reasonable to map the load balancing controller reasonable onto the claimed fabric-adjusted meter modifier as the latest office action asserts. For instance, "**determining**" the load balancing controller **would not make sense** under such a mapping. This is because load balancing controller is a **hardware device** while the claimed fabric-adjusted meter modifier is a **calculated value**.

Masuda et al. is not cited in relation to this claim limitation.

Third, claim 1 recites "**adding the fabric-adjusted meter modifier to a meter corresponding to the specific COS group, wherein the meter comprises a counter that tracks traffic associated with said specific service over a period of time, and wherein said adding updates the meter.**" (Emphasis added.) This limitation finds support in the original application, for example, on page 4, lines 15-20, which recites as follows. "In order to track the service, a meter configured for that purpose will be utilized. The meter may comprise a counter that tracks the traffic associated with the service over a particular period of time. When a packet attributed to group Ci is received,

a meter modifier based on a payload size of the packet is added 204 to the corresponding meter. This updates the meter."

The latest office action asserts that col. 6, lines 17-38 of Sreejith et al. discloses this limitation of "adding the fabric-adjusted meter modifier to a meter ...." (Page 4, lines 1-4 of the latest office action.) In particular, the latest office action asserts, "The load balancing controller 315 uses the measured load statistics stored in uplink load statistic table 325 to modify or update the routing table information stored in load balancing table 320 in order to affect load balancing between the O1 and O2 uplink paths, wherein **the load balancing table 320 is the meter** that manages the load balancing between the O1 and O1 uplink paths." (Page 4, lines 4-9 of the latest office action.) This assertion is respectfully traversed.

Applicants respectfully submit that the cited load balancing table is not a "meter" as expressly defined in claim 1. In particular, the load balancing table is not reasonably interpreted to one of ordinary skill in the art as "a meter corresponding to the specific COS group, wherein the meter comprises a counter that tracks traffic associated with said specific service over a period of time." The load balancing table does not correspond to a specific class of service group and does not comprise a counter that tracks traffic associated with said specific service over a period of time.

Masuda et al. is not cited in relation to this claim limitation.

Fourth, Masuda et al. is asserted as teaching "the method of determining a fabric-adjusted meter modifier depending on a payload size of the packet (Masuda et al. column 20, lines 55-58)." (Page 4, lines 10-14 of the latest office action.) This assertion is respectfully traversed.

The cited portion of Masuda et al. teaches merely updating the payload length in the AF management table 1301 if the payload length is less than 1.5 K-bytes. There is no disclosure or suggestion in the citation of determining a fabric-adjusted meter modifier, much less of determining such a modifier depending on a payload size.

In conclusion, applicant respectfully submits that claim 1 overcomes this rejection for one or more of the four reasons discussed above.

Claim 9 recites as follows.

9. An apparatus for forwarding traffic from a plurality of sources, the apparatus comprising:

a port for receiving a packet that is placed into a specific COS group pertaining to a specific service being tracked and controlled;

calculation circuitry configured to determine a fabric-adjusted meter modifier depending on a payload size of the packet and on a technology of an uplink being used;

update circuitry configured to add the fabric-adjusted meter modifier to a meter corresponding to the specific COS group, wherein said meter comprises a counter that tracks traffic associated with said service over a period of time.

(Emphasis added.)

As seen above, claim 9 includes limitations similar to the limitations discussed above in relation to claim 1. Hence, applicant respectfully submits that claim 9 overcomes this rejection for one or more of the four reasons discussed above in relation to claim 1.

Claim 10 depends from claim 9. As such, claim 10 also overcomes this rejection.

Claim 15 recites as follows.

15. A system for routing traffic from a plurality of sources using class of service (COS) meters, the system comprising:

means for receiving a packet that is placed into a specific COS group pertaining to a specific service being tracked and controlled;

means for determining a fabric-adjusted meter modifier depending on a payload size of the packet and on a technology of an uplink being used;

means for adding the fabric-adjusted meter modifier to a COS meter corresponding to the specific COS group, wherein said meter comprises a counter that tracks traffic associated with said service over a period of time, and wherein said adding updates said meter.

(Emphasis added.)

As seen above, claim 15 includes limitations similar to the limitations discussed above in relation to claim 1. Hence, applicant respectfully submits that claim 15 overcomes this rejection for one or more of the four reasons discussed above in relation to claim 1.

B. Rejection of claims 16 and 21 under 35 U.S.C. § 103(a) as being unpatentable over Sreejith et al. (Pat. No. 7,239,608) in view of Masuda et al. (Pat. No. 6,678,474)

Claims 16 and 21 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Sreejith et al. (Pat. No. 7,239,608) in view of Masuda et al. (Pat. No. 6,678,474). This rejection is respectfully traversed.

Claim 16 recites as follows.

16. A method of implementing class of service (COS) functionality in a telecommunications system, the method comprising:
defining a user-configurable function by way of a user interface; and
assigning the user-configurable function to be a meter modifier function associated with a class of service group in the system,

wherein the meter modifier function depends on a payload size of a packet and is used to adjust for a fabric uplink technology,

adding the meter modifier function to a group meter, wherein said adding updates the group meter.

(Emphasis added.)

As seen above, claim 16 includes limitations similar to the limitations discussed above in relation to claim 1. In particular, claim 16 recites "assigning the user-configurable function to be a meter modifier function associated with a class of service group in the system, wherein the meter modifier function depends on a payload size of a packet and is used to adjust for a fabric uplink technology" and "adding the meter modifier function to a group meter, wherein said adding updates the group meter."

As discussed above in relation to claim 1, the cited art does not disclose or suggest these limitations in claim 16. Therefore, applicant respectfully submits that claim 16 also overcomes this rejection.

Claim 21 recites as follows.

21. A method of implementing class of service (COS) functionality in a telecommunications system, the method comprising:

defining multiple user-configurable meter modifier functions by way of a user interface, said meter modifier functions to be added to meters to update said meters; and

assigning each service class of a set of service classes to one of the user-configurable meter modifier functions, wherein the meter modifier functions are dependent upon packet payload size and which type of fabric-uplink technology is used.

(Emphasis added.)

As seen above, claim 21 includes limitations similar to the limitations discussed above in relation to claim 1. In particular, claim 21 recites "defining multiple user-configurable meter modifier functions by way of a user interface, said meter modifier functions to be added to meters to update said meters" and "assigning each service class of a set of service classes to one of the user-configurable meter modifier functions, wherein the meter modifier functions are dependent upon packet payload size and which type of fabric-uplink technology is used."

As discussed above in relation to claim 1, the cited art does not disclose or suggest these limitations in claim 21. Therefore, applicant respectfully submits that claim 21 also overcomes this rejection.

C. Rejection of claims 3-6, 11-13 and 25 under 35 U.S.C. § 103(a) as being unpatentable over Sreejith et al. (Pat. No. 7,239,608) in view of Masuda et al. (Pat. No. 6,678,474) as applied to claim 1 above and further in view of Mittal et al. (Pat. No. 7,035,212)

Claims 3-6 and 25 depend from claim 1. Hence, claims 3-6 and 25 are patentably distinguished over Sreejith et al. in view of Masuda et al. for one or more of the reasons discussed above in section A. Mittal et al. is cited in relation to its egress traffic manager and egress traffic hub. The citation to Mittal et al. does not cure the deficiencies of Sreejith et al. in view of Masuda et al. Therefore, applicant respectfully submits that claims 3-6 overcome this rejection.

Claims 11-13 depend from claim 9. Hence, claims 11-13 are patentably distinguished over Sreejith et al. in view of Masuda et al. for one or more of the reasons discussed above in section A. The citation to Mittal et al. does not cure the deficiencies of Sreejith et al. in view of Masuda et al. Therefore, applicant respectfully submits that claims 11-13 overcome this rejection.

D. Rejection of claims 18 and 19 under 35 U.S.C. § 103(a) as being unpatentable over Sreejith et al. (Pat. No. 7,239,608) in view of Masuda et al. (Pat. No. 6,678,474) as applied to claim 1 above and further in view of Mittal et al. (Pat. No. 7,035,212)

Claims 18 and 19 depend from claim 16. Hence, claims 18 and 19 are patentably distinguished over Sreejith et al. in view of Masuda et al. for one or more of the reasons discussed above in section B. The citation to Mittal et al. does not cure the deficiencies of Sreejith et al. in view of Masuda et al. Therefore, applicant respectfully submits that claims 18 and 19 overcome this rejection.

E. Rejection of claim 14 under 35 U.S.C. § 103(a) as being unpatentable over Sreejith et al. (Pat. No. 7,239,608) in view of Masuda et al. (Pat. No. 6,678,474) as applied to claim 9 above and further in view of Norrell et al. (Pat. No. 6,874,096)

Claim 14 depends from claim 9. Hence, claim 14 patentably distinguished over Sreejith et al. in view of Masuda et al. for one or more of the reasons discussed above in section A. Norrell et al. is cited in relation to an adder and comparators. The citation to Norrell et al. does not cure the deficiencies of Sreejith et al. in view of Masuda et al. Therefore, applicant respectfully submits that claim 14 overcome this rejection.

F. Rejection of claims 22-24 under 35 U.S.C. § 103(a) as being unpatentable over Sreejith et al. (Pat. No. 7,239,608) in view of Masuda et al. (Pat. No. 6,678,474) as applied to claim 1 above and further in view of Valvo et al. (Pat. No. 7,292,534)

Claims 22-24 depend from claim 1. Hence, claims 22-24 are patentably distinguished over Sreejith et al. in view of Masuda et al. for one or more of the reasons discussed above in section A. Valvo et al. is cited in relation to software-based and hardware-based routing. The citation to Valvo et al. does not cure the deficiencies of

Sreejith et al. in view of Masuda et al. Therefore, applicant respectfully submits that claims 22-24 overcome this rejection.

G. Rejection of claim 26 under 35 U.S.C. § 103(a) as being unpatentable over Sreejith et al. (Pat. No. 7,239,608) in view of Masuda et al. (Pat. No. 6,678,474) and Mittal et al. (Pat. No. 7,035,212) as applied to claim 25 above and further in view of Norrell et al. (Pat. No. 6,874,096)

Claim 26 depends from claim 1. Hence, claim 26 patentably distinguished over Sreejith et al. in view of Masuda et al. for one or more of the reasons discussed above in section A. The citations to Mittal et al. and Norrell et al. do not cure the deficiencies of Sreejith et al. in view of Masuda et al. Therefore, applicant respectfully submits that claim 26 overcome this rejection.

VIII. CONCLUSION

For at least the above reasons, applicants respectfully request that the rejections of claims 1, 3-6, 9-16, 18, 19, and 21-26 be overturned.

Respectfully submitted,
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CLAIMS APPENDIX

CLAIMS INVOLVED IN THE APPEAL

1. A method of assigning service priorities to traffic from a plurality of sources using meters, the method comprising:
receiving a packet that is placed into a specific class of service (COS) group pertaining to a specific service being tracked and controlled;
determining a fabric-adjusted meter modifier depending on a payload size of the packet and on technology of a limiting uplink being used; and
adding the fabric-adjusted meter modifier to a meter corresponding to the specific COS group, wherein the meter comprises a counter that tracks traffic associated with said service over a period of time, and wherein said adding updates the meter.

3. The method of claim 1, further comprising:
determining if the meter exceeds a black-type limit for the specific COS group; and
if the black-type limit is exceeded, then dropping the packet.

4. The method of claim 1, further comprising:
determining if the meter exceeds a red-type limit for the specific COS group; and
if the red-type limit is exceeded, then lowering a priority level of the packet.

5. The method of claim 1, further comprising:
determining if the COS meter exceeds a limit for the specific COS group and
if the limit is exceeded then perform an action specified for the limit.

6. The method of claim 2, wherein determining the fabric-adjusted meter modifier comprises retrieving a modifier value associated with the payload size from a technology-specific look-up table.

9. An apparatus for forwarding traffic from a plurality of sources, the apparatus comprising:

a port for receiving a packet that is placed into a specific COS group pertaining to a specific service being tracked and controlled;

calculation circuitry configured to determine a fabric-adjusted meter modifier depending on a payload size of the packet and on a technology of an uplink being used;

update circuitry configured to add the fabric-adjusted meter modifier to a meter corresponding to the specific COS group, wherein said meter comprises a counter that tracks traffic associated with said service over a period of time.

10. The apparatus of claim 9, wherein the fabric-adjusted meter modifier is also dependent on a payload size of the packet.

11. The apparatus of claim 9, further comprising:

comparison circuitry configured to determine if the meter exceeds a black-type limit for the specific COS group; and

non-forwarding circuitry for dropping the packet if the black-type limit is exceeded.

12. The apparatus of claim 9, further comprising:

comparison circuitry configured to determine if the meter exceeds a red-type limit for the specific COS group; and

prioritization circuitry for lowering a priority level of the packet if the red-type limit is exceeded.

13. The apparatus of claim 9, wherein the calculation circuitry comprises a technology-specific look-up table.

14. The apparatus of claim 9, wherein the calculation circuitry comprises a plurality of comparators and an adder to sum outputs of the comparators.

15. A system for routing traffic from a plurality of sources using class of service (COS) meters, the system comprising:
means for receiving a packet that is placed into a specific COS group pertaining to a specific service being tracked and controlled;
means for determining a fabric-adjusted meter modifier depending on a payload size of the packet and on a technology of an uplink being used;
means for adding the fabric-adjusted meter modifier to a COS meter corresponding to the specific COS group, wherein said meter comprises a counter that tracks traffic associated with said service over a period of time, and wherein said adding updates said meter.

16. A method of implementing class of service (COS) functionality in a telecommunications system, the method comprising:
defining a user-configurable function by way of a user interface; and
assigning the user-configurable function to be a meter modifier function associated with a class of service group in the system, wherein the meter modifier function depends on a payload size of a packet and is used to adjust for a fabric uplink technology,
adding the meter modifier function to a group meter, wherein said adding updates the group meter.

18. The method of claim 16, wherein the user-configurable function depends on a current value of the meter.

19. The method of claim 16, wherein the user-configurable function depends on a last destination of a packet forwarded by the system.

21. A method of implementing class of service (COS) functionality in a telecommunications system, the method comprising:

defining multiple user-configurable meter modifier functions by way of a user interface, said meter modifier functions to be added to meters to update said meters; and

assigning each service class of a set of service classes to one of the user-configurable meter modifier functions, wherein the meter modifier functions are dependent upon packet payload size and which type of fabric-uplink technology is used.

22. The method of claim 1, wherein the fabric-adjusted meter modifier is different for hardware-based and software-based routing.

23. The method of claim 22, wherein the fabric-adjusted meter modifier is different for tagged and untagged hardware-based routing.

24. The method of claim 22, wherein the fabric-adjusted meter modifier is different for hardware-based routing to an Ethernet link and hardware-based routing to a Synchronous Optical NETwork (SONET) link.

25. The method of claim 1, wherein the fabric-adjusted meter modifier is also dependent on a payload size of the packet.

26. The method of claim 25, wherein determining the fabric-adjusted meter modifier comprises summing outputs from a plurality of comparators with the payload size if specified by a user-configurable flag.

EVIDENCE APPENDIX

There are no documents or items submitted under this section.

RELATED PROCEEDINGS APPENDIX

There are no documents or items submitted under this section.